

In the claims:

- Claim 1. (Currently Amended) A method of reducing photoaging in a mammal, comprising administering to the epidermis of the mammal a composition comprising an effective amount of at least one DNA oligonucleotide, wherein said oligonucleotide is approximately 2-200 nucleotides in length, and wherein the oligonucleotide comprises a phosphodiester backbone.
- Claim 2. (Previously Amended) The method of Claim 1, wherein said oligonucleotide consists of a nucleotide sequence or a portion of a sequence selected from the group consisting of SEQ ID NOs: 1, 2, 3, 4, 5, 6, 8 and 11.
- Claim 3. (Original) The method of Claim 1, wherein said oligonucleotide is single-stranded.
- Claim 4. (Previously Amended) The method of Claim 1, wherein the oligonucleotide comprises a 5' phosphate.
- Claim 5. (Original) The method of Claim 1, wherein said oligonucleotide is at a concentration of about 1 μ M to about 500 μ M.
- Claim 6. (Previously Amended) The method of Claim 1, wherein the oligonucleotide comprises a physiologically acceptable carrier.
- Claim 7. (Previously Amended) A method of increasing melanin production in epidermal melanocytes, said method comprising topically administering to said epidermal melanocytes an effective amount of a composition comprising at least one oligonucleotide, wherein the oligonucleotide has a phosphodiester backbone, and wherein the oligonucleotide has a nucleotide sequence consisting of SEQ ID NO:5, SEQ ID NO:3, or SEQ ID NO: 11.
- Claim No. 8. (Previously Amended) The method of Claim 7, wherein said oligonucleotide has a nucleotide sequence consisting of SEQ ID NO: 5 or a portion thereof.

- Claim No. 9. (Original) The method of Claim 7, wherein the oligonucleotide is single-stranded.
- Claim No. 10. (Original) The method of Claim 7, wherein the oligonucleotide comprises a 5' phosphate.
- Claim No. 11. (Original) The method of Claim 7, wherein the oligonucleotide is at a concentration of about 1 μ M to about 500 μ M.
- Claim No. 12. Cancelled.
- Claim No. 13. (Previously Amended) The method of Claim 7, wherein the composition comprises a physiologically acceptable carrier.
- Claim No. 14. (Previously Amended) A method of increasing melanin production in epidermal melanocytes, comprising topically administering the epidermal melanocytes an effective amount of at least one oligonucleotide having a phosphodiester backbone, wherein the oligonucleotide consists of at least one sequence selected from the group consisting of: pTpT , SEQ ID NO: 1, SEQ ID NO:3, SEQ ID NO:5, and SEQ ID NO:11.
- Claim No. 15. (Original) The method of Claim 14, wherein the oligonucleotide is single-stranded.
- Claim No. 16. (Original) The method of Claim 14, wherein the oligonucleotide comprises a 5' phosphate.
- Claim No. 17. (Original) The method of Claim 14, wherein the oligonucleotide is at a concentration of about 1 μ M to about 500 μ M.
- Claim No. 18. Cancelled.
- Claim No. 19. (Previously Amended) The method of Claim 14, wherein the composition comprises a physiologically acceptable carrier.

Claim No. 20. (Previously Amended) A method of increasing DNA repair in epithelial cells, comprising applying directly to said cells an effective amount of a composition comprising pTpT.

Claim Nos. 21-22. Cancelled.

Claim No. 23. (Previously Amended) The method of Claim 20, wherein the pTpT is at a concentration of about 1 μ M to about 500 μ M.

Claim No. 24. Cancelled.

Claim No. 25. (Previously Amended) The method of Claim 20, wherein the composition comprises a physiologically acceptable carrier.

Claim No. 26. (Previously Amended) A method of inhibiting proliferation of epithelial cells, comprising topically administering to said cells an effective amount of a composition comprising pTpT.

Claim Nos. 27-28. Cancelled.

Claim No. 29. (Previously Amended) The method of Claim 26, wherein the pTpT is at a concentration of about 1 μ M to about 500 μ M.

Claim Nos. 30-31. Cancelled.

Claim No. 32. (Previously Amended) The method of Claim 26, wherein the composition comprises a physiologically acceptable carrier.

Claim Nos. 33-50. Cancelled.

Claim No. 51. (Previously Amended) A composition comprising at least one oligonucleotide, said oligonucleotide having a phosphodiester backbone, and a physiologically acceptable carrier, wherein at least one of said oligonucleotides has an oligonucleotide sequence consisting of SEQ ID NO: 5 and wherein said composition is suitable for medicinal or cosmetic use.

Claim No. 52. (Original) The composition of Claim 51, wherein at least one of said oligonucleotides comprises a 5' phosphate.

Claim Nos. 53-56. Cancelled.

Claim No. 57. (Previously Amended) A composition comprising at least one oligonucleotide, said oligonucleotide comprising a phosphodiester backbone, and a physiologically acceptable carrier, wherein at least one of said oligonucleotides has a nucleotide sequence consisting of SEQ ID NO:3 and wherein said composition is suitable for medicinal or cosmetic use.

Claim No. 58. (Original) The composition of Claim 57, wherein at least one of said oligonucleotides comprises a 5' phosphate.

Claim Nos. 59-62. Cancelled.

Claim No. 63. Cancelled.

Claim No. 64. Cancelled.

Claim Nos. 65-68. Cancelled.

Claim No. 69. (Previously Amended) A composition comprising at least one oligonucleotide, said oligonucleotide comprising a phosphodiester backbone, and a physiologically acceptable carrier, wherein at least one of said oligonucleotides has a nucleotide sequence consisting of SEQ ID NO: 1, SEQ ID NO: 2, SEQ ID NO: 3 or SEQ ID NO: 4, and wherein at least one of said oligonucleotides comprises a 5' phosphate, and wherein said composition is suitable for medicinal or cosmetic use.

Claim No. 70. Cancelled.

Claim No. 71. (Previously Amended) A method of increasing p53 activity in epidermal cells, said method comprising topically administering an effective amount of

d(pT)₂, or an oligonucleotide having a nucleotide sequence consisting of SEQ ID NO: 1 or SEQ ID NO:6 to said cells.

Claim No. 72. (Previously Added) The method of Claim 71 wherein activation of p53 results in nucleotide excision repair in the cell.

Claim Nos. 73-74. Cancelled.

Claim No. 75. (Previously Amended) A method of treating hyperproliferative disease affecting epithelial cells in a mammal, comprising directly administering to the epithelial cells an effective amount of a composition comprising at least one DNA oligonucleotide comprising a phosphodiester backbone, wherein the oligonucleotide has a nucleotide sequence consisting of SEQ ID NO: 1, SEQ ID NO:6 or pTpT.

Claim No. 76. (Previously Amended) The method of Claim 75, wherein pTpT is ultraviolet-irradiated.

Claim No. 77. (Currently amended) The method of Claim 75, wherein ~~the DNA fragments~~ **an effective amount of said composition are is** administered in a delivery vehicle.

Claim No. 78. (Previously Added) The method of Claim 77, wherein the delivery vehicle comprises liposomes.

Claim No. 79. (Previously Added) The method of Claim 77, wherein the delivery vehicle comprises propylene glycol.

Claim No. 80. Cancelled.

Claim No. 81. (Currently amended) The method of Claim 75, wherein ~~the DNA fragments~~ **an effective amount of said composition are is** administered by aerosol.

Claim No. 82. (Previously Added) The method of Claim 75, wherein the mammal is a human.

- Claim No. 83. (Previously Amended) The method of Claim 75, wherein the epithelial cells are carcinoma cells.
- Claim No. 84. Cancelled.
- Claim No. 85. (Previously Amended) A method of inhibiting proliferation of skin cells in a mammal, comprising administering topically to the skin cells an effective amount of a composition selected from the group consisting of deoxynucleotides, dinucleotides, dinucleotide dimmers and any of the foregoing combinations thereof.
- Claim No. 86. (Previously Amended) A method of inhibiting or reducing DNA damage in epidermal cells of a mammal, wherein said DNA damage is caused by UV irradiation, said method comprising topically administering to the cells in the mammal an effective amount of a composition comprising DNA fragments that are approximately 2-200 nucleotides in length, the DNA fragments being selected from the group consisting of: single-stranded DNA fragments, deoxynucleotides, dinucleotides, dinucleotide dimers and combinations thereof.
- Claim No. 87. Cancelled.
- Claim No. 88. (Currently amended) A method of inhibiting growth of malignant cells in a mammal, comprising directly administering to said cells an effective amount of DNA fragments that comprise a phosphodiester backbone and are about 2-200 nucleotides in length, the DNA fragments being selected from the group consisting of: single-stranded DNA fragments, deoxynucleotides, DNA dinucleotides, DNA dinucleotide dimers and a combination of any of the foregoing.
- Claim No. 89. (Previously Added) The method of Claim 85, wherein said skin cells are selected from the group consisting of: epithelial cells, melanocytes, keratinocytes and fibroblasts.

Claim Nos. 90-92. Cancelled.

Claim No. 93. (Previously Amended) A method of increasing melanin production in epidermal cells, said method comprising topically administering to said cells an effective amount of a composition comprising at least one single-stranded oligonucleotide, wherein the oligonucleotide has a phosphodiester backbone, and wherein the oligonucleotide consists of SEQ ID NO: 11, SEQ ID NO:1, pTpT, SEQ ID NO:5 or a functional fragment of SEQ ID No:5.

Claim No. 94. (Previously Added) A method of increasing DNA repair in skin of a mammal, comprising topically administering to the skin an effective amount of a composition comprising pTpT or an oligonucleotide having a nucleotide sequence consisting of SEQ ID NO: 1.

Claim No. 95. (Currently amended) A method of inhibiting growth of malignant skin cells of a mammal, said method, comprising topically administering to said cells an effective amount of pTpT.

Claim No. 96. Cancelled.

Claim No. 97. Cancelled.

Claim No. 98. (Previously Added) The method of Claim 86, wherein the composition comprises pTpT or a single-stranded DNA fragment having a nucleotide sequence consisting of SEQ ID NO: 1 with a 5' phosphate.

Claim No. 99. (Previously Added) A method of inhibiting the growth of cells in a mammal, comprising directly administering to the cells of the mammal an effective amount of pTpT.

Claim No. 100. (Previously Added) A method of inhibiting proliferation of epithelial cells, comprising directly administering to said cells an effective amount of a composition comprising pTpT.

- Claim No. 101. (Previously Added) A method of inhibiting proliferation of skin cells in a mammal, comprising administering topically to the skin an effective amount of a composition comprising at least one oligonucleotide having a DNA sequence consisting of pTpT or SEQ ID NO:1.
- Claim No. 102. (Previously Added) A method of inhibiting proliferation of skin cells in a mammal, comprising administering topically to the skin of the mammal an effective amount of a composition comprising pTpT.
- Claim No. 103. (Previously Added) The method of Claim 102, wherein said skin cells are selected from the group consisting of: melanocytes, keratinocytes and fibroblasts.
- Claim No. 104. (Previously Added) A method of inhibiting growth of skin cells in a mammal, comprising administering to skin of the mammal an oligonucleotide having a nucleotide sequence consisting of pTpT, SEQ ID NO:1 or SEQ ID NO:6.
- Claim No. 105. (Previously Added) The method of Claim 104 wherein the skin cells are keratinocytes.
- Claim No. 106. (Previously Added) A composition comprising at least one oligonucleotide, said oligonucleotide having a phosphodiester backbone, and a physiologically acceptable carrier, wherein at least one of said oligonucleotides has an oligonucleotide sequence consisting of SEQ ID NO: 11 and wherein said composition is suitable for medicinal or cosmetic use.
- Claim No. 107. (Previously Added) The composition of Claim 106, wherein at least one of said oligonucleotides comprises a 5' phosphate.
- Claim No. 108. Cancelled.
- Claim No. 109. Cancelled.
- Claim No. 110. (Previously Added) A method of increasing melanin production in epidermal melanocytes, said method comprising topically administering to said

epidermal melanocytes an effective amount of a composition comprising at least one oligonucleotide, wherein the oligonucleotide has a phosphodiester backbone, and wherein the oligonucleotide has a nucleotide sequence consisting of SEQ ID NO: 1, SEQ ID NO: 2; SEQ ID NO:3 or SEQ ID NO:4.

Claim No. 111. (Currently amended) A method of inhibiting growth of malignant skins cells in a mammal, said method comprising topically administering to the skin cells an effective amount of a composition comprising at least one oligonucleotide comprising a phosphodiester backbone, wherein the oligonucleotide consists of a sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO: 6 and pTpT.

Claim No. 112. (Previously Added) A method of treating hyperproliferative disease affecting epithelial cells in a mammal, comprising administering by aerosol to the epithelial cells an effective amount of a composition comprising at least one DNA oligonucleotide comprising a phosphodiester backbone, wherein the oligonucleotide has a nucleotide sequence consisting of SEQ ID NO:1, SEQ ID NO:6 or pTpT.

Claim No. 113. (Previously Added) A method of treating inhibiting growth of epithelial carcinoma cells in a mammal, comprising administering to the epithelial carcinoma cells an effective amount of a composition comprising at least one DNA oligonucleotide comprising a phosphodiester backbone, wherein the oligonucleotide has a nucleotide sequence consisting of SEQ ID NO: 1, SEQ ID NO:6 or pTpT .